

RESPONSE

This paper is in response to the Official Action mailed September 24, 2003. A petition for a one-month extension of time, extending the time to respond from December 24, 2003 until January 26, 2004 is enclosed herewith and incorporated by reference.

Claims 7-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sixta et al* in view of AT 403 704 or *Cheng* or Austrian patent application 2203/92. The Examiner has alleged that *Sixta* teaches bleaching medium consistency pulp with ozone gas containing 300 g/m³ ozone (30% ozone by weight). The Examiner has further alleged that the ozone is mixed into the pulp by agitation or mixing and prefers a high shear mixer, but that the other, non-preferred mixers of *Sixta* would not be high shear mixers. The Examiner has concluded that it would have been obvious to use the ozone/liquid dispersing means to mix the ozone into the liquid pulp slurry of *Sixta* as taught by the secondary references. The Examiner also concluded that it would have been obvious that non-high shear mixers could be used as the mixer of *Sixta* because Austrian patent application 2203/92 teaches the alternativeness of mixing ozone gas into medium consistency pulp using mixers with or without high shear. Applicants respectfully traverse this rejection because the collective teachings of the prior art would not have motivated one skilled in the art to produce the claimed invention with a reasonable expectation of success.

The method taught in *Sixta* explicitly points out that medium consistency pulp can be treated with ozone containing gas if the gas is under pressure and the process is carried out with simultaneous vigorous agitation. See, e.g., *Sixta* on col. 4, lines 22-26. Nevertheless, the Examiner has made an inference that *Sixta* inherently teaches that a non-high shear mixer could be used in place of the high shear mixers disclosed. This

deduction is unwarranted in view of the entire disclosure of *Sixta*. The disclosure on column 4, lines 22-48 of *Sixta* states as follows:

By contrast with this disclosure, the present invention has discovered that middle-consistency range pulp can be directly treated with ozone containing gas **provided that the gas is under pressure and the process is carried out with simultaneous vigorous agitation.** A dilution and dewatering of the pulp suspension as is required by Austrian Patent 380 496 (see page 3, lines 19-20 and 35-36) is unnecessary.

For optimum results in accordance with the present invention it is advantageous to maintain the volume ratio of gas:liquid at 1:0.5 to 1:8 and preferably 1:1 to 1:6.

For compression of the ozone containing gas we preferably use a cooled compressor, most advantageously a water ring pump.

Preferably the vigorous agitation or mixing is carried out using a high-shear mixer.

High-shear mixers are known and have been used for various purposes. For example we may use the high-shear mixer utilized for the dispersion of pigments or dyestuffs in German Patent Document 24 06 430, the high-shear mixer used in the production of PVC powder in U.S. Pat. No. 3,775,359, the high-shear mixer used for the production of semisolid emulsions in U.S. Pat. No. 3,635,834, or the high-shear mixer used in conjunction with pulp suspensions in Japanese Patent 63099389.

Vigorous agitation, which is clearly an essential aspect of the invention of *Sixta*, cannot be achieved without using a high shear mixer. Indeed, the only method of vigorous agitation disclosed in *Sixta* is by using a high shear mixer (see col. 4, lns. 38-49). Moreover, there is no teaching, suggestion or motivation in *Sixta* that anything other than a high shear mixer can be used to effect vigorous agitation.

Additionally, all of the working examples of *Sixta* involve the use of a high shear mixer in the range of 1500-3200 RPM. There is no disclosure of bleaching without using a high shear mixer, nor is there any teaching, suggestion or motivation in *Sixta* to use a non-high shear mixer to bleach medium consistency pulp from which the Examiner could have made such an inference. Contrary to the Examiner's assertion, use of a high shear mixer is not preferred, rather it is a necessary aspect of the invention of *Sixta*.

Even if a person skilled in the art had been motivated to combine the teachings of *Sixta* and any of the secondary references cited, the claimed invention would not have been produced. None of the secondary references, e.g. AT 403 704, Austrian patent application 2203/92, and Cheng, teach or suggest using a non-high shear mixer. What is more, the Examiner has failed to address the claimed recitation of radially injecting the ozone containing gas into the pulp, which is recited in each of the independent claims.

The Examiner has alleged that AT 403 704 teaches using ozone containing gas to bleach pulp wherein the ozone is added directly to the reactor without mixing, and that it would have been obvious to use the ozone/liquid dispersing means of AT 403 704 to mix the ozone into the liquid pulp slurry of *Sixta*. Referring to the Search Report that accompanies Applicants' corresponding published PCT application, AT 403 704, which is in a language other than English, corresponds to Canadian patent application 2,132,165. The '165 publication states that the pulp is "mechanically tossed" in the presence of ozone in a carrier gas, contrary to the Examiner's assertion that the pulp and ozone containing gas are not mixed (p. 5, lns. 3-7). Still, the '165 publication is silent as to the type of required, or even acceptable mixers. Aside from the foregoing, the '165 publication is directed to a process of using ozone for

bleaching *high* consistency pulp. There is no teaching, suggestion or motivation in the '165 publication to use any mixer, non-high shear or otherwise, to bleach medium consistency pulp.

The Examiner has also alleged that it would have been obvious to use the ozone/liquid dispersing means of *Cheng* to mix the ozone into the liquid pulp slurry of *Sixta*. *Cheng* discloses a method for dispersing a gas into a liquid using injunction techniques, however, it is absolutely silent as to bleaching pulp. Indeed, there is no teaching, suggestion or motivation in any of the publications to use the ozone/liquid dispersing means of *Cheng* with the method of bleaching pulp described in *Sixta*.

The Examiner has also alleged that Austrian patent application 2203/92 teaches the alternativeness of mixing high concentrations of ozone containing gas into pulp with or without high shear mixers, and that it would have been obvious to use the ozone/liquid dispersing means of AT 2203/92 to mix the ozone into the liquid pulp slurry of *Sixta*. AT 2203/92 discloses the use of mixers with or without fluidization effects. However, the method of AT 2203/92 teaches introducing ozone containing gas at a very low pressure, preferably less than one bar, necessitating a bleach reactor. Additionally, the method of AT 2203/92 requires multiple ozone addition stages with degassing stages in between. When viewed in its entirety, the teachings of AT 2203/92 would have led the skilled artisan away from, as opposed to toward the claimed invention. Even though AT 2203/92 has been cited and relied upon for its teachings with respect to ozone/liquid dispersing means, its teachings with respect to low pressure and multiple ozone addition stages must also be considered. It is impermissible to consider only a fragment of a reference to support a given position, while ignoring the other parts that are necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the

art. *In re Hedges*, 228 USPQ 685, 687 (1986). See also, *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.")

There is no teaching, suggestion or motivation in AT 403 704, *Cheng* or Austrian patent application 2203/92 to use the ozone/liquid dispersing means of these publications in the ozone bleaching method described in *Sixta*. Thus, the combination of bleaching medium consistency pulp with ozone gas containing 300 g/m³ ozone (30% ozone by weight) and a non-high shear mixer can only be made through the use of hindsight reconstruction, which the Court of Appeals for the Federal Circuit has consistently stated is impermissible. See *In Re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991); *Interconnect Planning Corp. v. Feil*, 774, F.2d 1132, 1143 (Fed. Cir. 1985). In view of the foregoing, reconsideration and withdrawal of these rejections are respectfully requested.

Claims 8 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of references cited above, and further in view of EP 526 383. The Examiner has alleged that EP 526 383 teaches generating ozone from pre-compressed oxygen. Claims 8 and 21 contain the elements of claim 7, discussed above. Claim 8 is dependent upon claim 7, and claim 21 is an independent claim that contains the elements of claim 7, and further contains generating the stream of ozone-containing gas using precompressed oxygen. Accordingly, Applicants' arguments set forth above are applicable here as well, and are incorporated herein. EP 526 383 is directed to a method of reducing the amount of contaminants in an ozone gas recycle stream in an ozone pulp bleaching process, and there is no disclosure in this publication regarding generating ozone

from precompressed oxygen. Accordingly, reconsideration and withdrawal of these rejections are respectfully requested.

In view of these remarks, further and favorable consideration of claims 7-21 and the issuance of a Notice of Allowance with respect to these claims are earnestly solicited.

No fee is deemed necessary in connection with the filing of this Amendment. However, if any fee is required, the Examiner is authorized to charge any such fee to our Deposit Account No. 12-1095.

Dated: January 26, 2004

Respectfully submitted,

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